USSR   UDC 534-8

BELONENKO, N. V.

"Measuring the Speed of Ultrasound in Transformer Oil at Constant Density"

Translation: An interferometer method was used by the author to determine the
speed of propagation of acoustical waves in transformer oil GOST-982-56 in the
temperature range 21.1-95.1°C and the pressure range 0-370 atm. A block dia-
gram of the device is given. Acoustical waves of frequency 700 kHz were pro-
duced in an autoclave with the aid of a quartz plate with an X-cut. The work-
ing voltage on the quartz was ∿1 v. A constant temperature was maintained
with an accuracy of 0.1°C with the aid of a liquid thermostat. The coefficient
of adiabatic compressibility and wave resistance were calculated for the speed
of sound on the basis of the experimental data obtained. V. Semenov

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1/2   010   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--A NEW DREDGE -U-

AUTHOR--BELONOGOV, A.

COUNTRY OF INFO--USSR, JAPAN

SOURCE--VODNYY TRANSPORT, SEPTEMBER 1, 1970, P 4, COL 1

DATE PUBLISHED--01SEP70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--DREDGING MACHINERY, SHIPBUILDING ENGINEERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/1637   STEP NO--UR/9028/70/000/000/0004/0004

CIRC ACCESSION NO--AN0138613

2/2   010   UNCLASSIFIED   PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AN0138613
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   THE "OCHAKOV", A DREDGE
CONSTRUCTED IN JAPAN FOR THE SOVIET BLACK SEA TECHNICAL FLEET, HAS
PASSED THE ACCEPTANCE TESTS IN YOKOHAMA.

UNCLASSIFIED

USSR

BELONOGOV, G. G., ZINOV'YEV, E. V., DENISOV, V. F.

"Automatic Retrieval of Documents on the Basis of the Text of their Abstracts"

Avtomatika i Vychisl. Tekhn. [Automation and Computer Technology], 1972, No 5, pp 73-79 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V647, by the authors).

Translation: Methods of automatic retrieval of documents on the basis of the texts of their abstracts using associative-address representation in digital computer memory are studied. In the retrieval system suggested, requests are automatically translated from formalized Russian into machine language, and the texts of the abstracts are output as responses to the requests.

USSR   UDC: 681.3.06:51

BELONOGOV, G. G., NOVOSELOV, A. P.

"Some Quantitative Governing Principles in Automated Information Systems"

V sb. Tsifr. vychisl. tekhnika i programmir. (Digital Computer Technology
and Programming--collection of works), vyp. 6, Moscow, "Sov. radio", 1971,
pp 31-41 (from RZh-Kibernetika, No 7, Jul 71, Abstract No 7V723)

Translation: The paper investigates some ruling principles which occur
in formalized and informalized textual information (distribution of the
frequencies of appearance of message elements, dependence of the volume
of the vocabulary on the volume of the message block, distribution of the
lengths of message elements, etc.). It is shown that the resultant
principles can be used for determining the data compression factor.
Authors' abstract.

Thin Films

USSR

UDC 539.67

BELONOGOV, V. K., and ZOLOTUKHIN, I. V.

"Investigation of Internal Friction Amplitude Dependence on Condensed Aluminum, Copper, and Silver Films"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 99-100

Abstract: The internal friction amplitude dependence of poly- and single-crystal aluminum, copper, and silver films 1-3 microns thick, obtained by condensation under vacuum, was investigated. The amplitude-dependent part of internal friction in films is observed at higher deformation amplitudes when compared with that usually observed in a compact material. The higher value of critical deformation amplitude of internal friction is governed by a significant concentration of vacancies in films in which dislocations are locked. 1 figure, 5 references.

1/1

USSR   UDC 539.23

BELONOGOV, V. K., ZOLOTUKHIN, I. V., IYEVLEV, V. M., and
POSTNIKOV, V. S., Voronezh

"Production of Single-Crystal Aluminum Films on Mica"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 5, Sep-Oct 70,
pp 146-147

Abstract: The authors are studying conditions for the production
of single-crystal films on mica by condensation in a vacuum of up
to $1 \cdot 10^{-5}$ mm Hg. Condensation onto a surface prepared by vacuum
cleavage in vapors of the metal permits the production of single-
crystal films at a substrate temperature of 450° C and a residual
pressure below $5 \cdot 10^{-2}$ mm Hg. The deposition rate is at least
150 $\overset{\circ}{A}$/sec. The thickness of the studied films is 500-10,000 $\overset{\circ}{A}$.
The present article studies the structure of aluminum films 500-
10,000 $\overset{\circ}{A}$ thick, obtained by vacuum condensation onto mica (mus-
covite), for the purpose of determining factors affecting the
growth of single-crystal aluminum films. In order to estimate

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USSR

BELONOGOV, V. K., et al., Fizika i Khimiya Obrabotki Materialov,
No 5, Sep-Oct 70, pp 146-147

the effect of residual gases on film structure, condensation was
carried out in a vacuum of $5 \cdot 10^{-2}$ mm Hg and $1 \cdot 10^{-5}$ mm Hg onto
the cleavage surface of mica prepared in air and in vacuum. A
comparison of the structure of films obtained at the same sub-
strate temperatures for air and vacuum cleavage indicates that
the growth of aluminum films on mica is susceptible to the action
of residual gases on the substrate. Vacuum cleavage in the pres-
ence of the metal vapors and at high condensation rates reduces
their action to a minimum even at a residual pressure of
$5 \cdot 10^{-2}$ mm Hg. This makes it possible to obtain single-crystal
films under such conditions.

2/2

USSR   UDC 614.7:615.285.7:632.95]-099

TRAKHTENBERG, I. M., Professor, KAGAN, Yu. S., Professor, BELONOZHKO, G. A., Doctor
of Medical Sciences, ANTONOVICH, Ye. A., Candidate of Medical Sciences, and
POL'CHENKO, V. I., Candidate of Medical Sciences, All Union Scientific Research
Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics, Min-
istry of Health USSR, and Kiev Medical Institute

"Pesticides and Problems of Hygiene"

Abstract: The following topics were discussed: the increasing use of pesticides
all over the world, the mounting number of reported poisonings (from 1,700 cases
in the period 1945-1949 to over 15,000 in the period 1955-1959), the varied ef-
fects of soil and water pollution, and the ability of some pesticides to interact
with food proteins, fats, and vitamins and to alter the specific and nonspecific
reactivity of the body to many pathological agents and physiological stimuli.
These conditions require a massive research effort as a preliminary step in the
intelligent control of the use of these toxic compounds. Of major importance is
the development of adequate animal models to study the remote effects of pesti-
cides, to determine the possibility of extrapolating the data to man, and to pre-
dict the potential dangers to health from low concentrations of the toxins.
1/1

USSR   UDC: 8.74

BELONOZHKO, P. A., BOYKO, Ye. I., DUPLISHCHEV, A. M., SERYY, Ye. A., edi-
torial staff of "Avtomatika i Vychisl. Tekhnika" AN LatvSSR

"A Device for Solving Difference Equations"

Riga, Ustroystvo dlya resheniya raznostnykh uravneniy (cf. English above),
1972, 13 pp, ill. bibl. of 2 titles (manuscript deposited in VINITI, No
5197-72 Dep. from 8 Dec 72) (from RZh-Kibernetika, No 7, Jul 73, abstract
No 7V586 Dep. by the authors)

Translation: An analog-digital complex can be used to study digital auto-
matic control systems most completely. However, such a system is an
extremely complicated technical device which is not always accessible to
the researcher. The paper describes a device which has been developed and
technically realized to be used jointly with an analog computer to simu-
late the operation of a digital filter described by a linear difference
equation. The device incorporates step switches and can be used jointly
with the MPT-9 analog computer to solve linear difference equations. At-
tachment to the given type of model and the order of the equations to be
solved are not unique.

1/1

USSR

BELOOZEROV, N. N., All-Union Institute of Scientific and Technical Information

"The Wave Function of a System of Three Bodies During the Use of the Lower Approximation with Respect to the Radius of Interaction"

Moscow, Yadernaya Fizika, Vol 14, No 2, Aug 71, pp 328-342

Abstract: A procedure is described that makes it possible to construct the wave function of a system of three bodies, using the lower approximation with respect to r_0, the radius of interaction of the bodies. It is assumed not only that $r_0 (mE)^{1/2} \ll 1$ but also that $\mathcal{E}$, the binding energy of two of the bodies in the system, is smaller than E, the total binding energy of the system as a whole: that is, $\mathcal{E}/E \ll 1$. These assumptions are associated with the appearance of an additional nonvolatile quantum number -- a six-dimensional moment of momentum. Calculation of the parameter $\mathcal{E}/E$ results in this six-dimensional moment becoming a variable value, study of the change in which makes it possible to construct the wave function of the system for $\mathcal{E}/E \sim 1$. The procedure described in the article enables one to compute the wave function in the region $r \gg R_0$ in the form of a series for which $r_0/R \ll 1$. Then this wave function is joined in a sphere of radius $r = R_0$ with the solution to

1/2

USSR

Schrödinger's equation for $r \leqslant R_o$. An approximation method which is a varia-
tion of the thoery of perturbations is used to solve the latter equation; the
variation is such that all stable connected states (states for which $\mathcal{E}/E \ll 1$)
can be investigated. Finally, it is demonstrated that when the parameters of
the system of three bodies are analogous to the parameters of a nucleon system,
then in the three-body system there exists only one level with energy $|E| \simeq 10$
million electron volts.

2/2

USSR

BELOPOL'SKAYA, A. R.

"Algorithmic Approach to the Study of the Adjective in the Synthesis
and Analysis of German Sentences"

Vopr. algoritmiz. i programmir. obuch. [Problems of Algorithmization and
Programming of Learning -- Collection of Works], No 2, Moscow, Pedagogika
Press, 1973, pp 118-168 (Translated from Referativnyy Zhurnal - Kibernetika,
No 8, 1973, Abstract No 8 V743 by V. Gushchin)

Translation: The author studies the characteristics of the adjective in
German sentences in order to use them to construct algorithms for synthesis
and analysis. Specific learning algorithms are constructed, based on the
minimum number of characteristics.

1/1

USSR   UDC: 621.396.6-181.5(088.8)

BARASH, Yu. V., BOGDANOV, S. S., SHESTAK, V. V., BELOPOL'SKIY, M. I.,
SIMDYANOV, G. I.

"A Device for Combining Microelements"

USSR Author's Certificate No 259612, filed 30 Aug 68, published 3 Jun 70
(from RZh-Radiotekhnika, No 5, May 71, Abstract No 5V190 P)

Translation: This Author's Certificate introduces a device for combining
microcomponents such as the microminiature elements of radio electronic
circuits. The device is made in the form of a specimen stage which can be
moved in two mutually perpendicular directions and is mounted on a rotating
base connected to a mechanism for holding and adjusting the position of one
of the elements to be combined. In order to increase the resolving power
of the device, the adjustment mechanism is made in the form of a column
which rotates about a vertical axis. This adjustment mechanism and the
specimen table are subjected to the action of micro-adjustment units, each
of which is made in the form of a plate which changes its linear dimensions
as a result of thermal expansion.

1/1

USSR   UDC 621.793.72.016-982:[669.58+669.738

ROYKH, I. L., Doctor of Chemical Sciences, Professor, RAFALOVICH, D. M.,
Candidate of Physical and Mathematical Sciences, Reader, RYBIN, B. S.,
Engineer, PUSTOTINA, S. R., Candidate of Technical Sciences, and
BELORITSKAYA, Ye. L.

"Increasing the Adhesion Strength of Zinc and Cadmium Coatings Applied to
Steel by Vacuum Evaporation"

Abstract: It is demonstrated that good adhesion between coating and steel
can be produced after heating of steel in a vacuum. In order to produce
good adhesion of zinc and cadmium coatings on chemically pure steel (when
strong heating is undesireable), thin sublayers of lead can be used. Three
condensation modes are presented, all providing satisfactory adhesion of
zinc and cadmium to steel. The modes consist of chemical or electrochemical
surface preparation, heating in a high vacuum (10^{-4}-10^{-5} mm Hg) to 450°C
and higher and at 10^{-3} mm Hg to 620°C and higher, then cooling of the steel
to 50-200°C, followed by application of the coating; heating of the steel in
a vacuum chamber to 270-500°C, then application of a lead layer 2-4 microns
1/2

thick under a vacuum of 10^{-3}-10^{-5} mm Hg, after which the steel is cooled to
50-200°C and the zinc or cadmium is applied; chemical or electrochemical
preparation of the surface, heating to 250-300°C under a vacuum of 10^{-3}-10^{-5}
mm Hg, followed by application of the zinc to the heated surface of the steel.
The last mode can be used when the parts will not be strongly deformed.

USSR   UDC 389.6:620.113:543.42

BELOSHITSKIY, L. A., and SHAYEVICH, A. B.

"The Use of Synthetic Standards for the Spectral Analysis of High Carbon
Steels"

Sverdlovsk, VII Ural'sk. konf. po spektroskopii (Eighth Ural Conference on
Spectroscopy), Vyp. 1, 1971, pp 88-90 (from Referativnyy Zhurnal -- Metrologiya
i Izmeritel'naya Tekhnika, No 9, 1972, Abstract No 9.32.33)

Translation: The synthetic standard described consists of two parts: a
uniform core of certified material (for example OX18H10T steel) and an external
casing, serving as a base for the certified material (for example Armco iron).
The two parts of the synthetic standard are joined by press-fitting the core
to the casing, or by squeezing the casing around the core with a rolling mill.
Using synthetic standards together with control standards for spectral
analysis of steel made it possible to obtain results whose reproducibility and
convergence were not lower than those of results obtained with the usual method
for using standards. Several times less time is expended in preparing a
series of synthetic standards than in the common method of preparing metallic
standards, in that it is necessary to carry out overall chemical analyses for
only two substances (the certified substance and the material of the base).
1/1

USSR   UDC 669.295.004.2

FEYGIN, B. G., BELOSHURSKAYA, G. I., POMAZKINA, L. G., OSIPOVA, I. A.

"The Problem of Labor Hygiene in Titanium Production"

Tr. In-ta krayev. patol. KazSSR, (Works of the Institute of Regional Pathology, Kazakh SSR), 1970, Vol 19, pp 55-57, from RZh-Metallurgiya, No 2, 1971, Abstract No 2G199 by A. Tseydler)

Translation: Preliminary data on the general morbidity of workers in titanium production indicate that there are harmful factors influencing the morbidity of the respiratory organs and nasopharynx.

1/1

USSR

UDC 669.295.004.2

BELOSKURSKAYA, G. I., and FEYGIN, B. G.

"Morbidity of Titanium Production Workers at the Ust'-Kamenogorskiy Titanium-Magnesium Combine"

Tr. In-ta krayev, patol. KazSSR (Works of the Institute of Regional Pathology, Kazakh SSR), 1970, 19, pp 247-249 (from Zh Metallurgiya, No 1, 71, Abstract No 1G197 by A. Tseydler).

Translation: Studies of the general and occupational morbidity of workers involved in titanium production have shown that the greatest production dangers are to be found in the air of the working zone of the $TiCl_4$ shop, where the concentration of harmful chemical components significantly exceeds the permissible norm.

1/1

USSR   UDC 669.295.004.2

BELOSKURSKAYA, G. I., IBRAYEVA, M. Zh., YANCHANFU, L. V., and SABDENOVA, Sh. S.

"The Problem of the State of Health of Workers in the Titanium Industry"

Tr. In-ta krayev. patol. KazSSR (Works of the Institute of Regional Pathology,
Kazakh SSR), 1970, 19, pp 228-230 (from Zh Metallurgiya, No 1, 71, Abstract
No 1G196 by A. Tseydler).

Translation: A total of 297 men and 56 women working in titanium production
were examined. Diseases noted included: diseases of the upper respiratory
tract (26.4%), influenza (21.2%), angina (19.5%). The complaints of the work-
ers during the examinations were distributed as follows: increased fatigue and
general weakness 33.1% frequent headaches and dizziness, 37.1%, increased
perspiration, 27.8%, insomnia, 14.4%, tussis 28.3%. No significant pathology
of the cardiovascular system was noted. The conclusions are not final.
Further dynamic observations are continuing.

1/1

Simulations

USSR   UDC: 62-50

BELOSLYUDTSEV, N. N.

"Mathematical Modeling of Engineering Processes According to the Results of Passive Experiments"

Alma-Ata, Izvestiya Akademii Nauk Kazakhskoy SSR, Seriya Fiziko-Matematiches-kaya, No 5, Sep-Oct 70, pp 20-25

Abstract: The article considers a class of engineering processes possessing indeterminacy of control: i.e., the real mode, for certain reasons, fails to correspond exactly to the objective mode and forms a certain variance with respect to the objective mode. A performance criterion is given. The difficulties involved in the optimization of these processes by traditional methods are considered. An algorithm is devised for the approximate calcula-tion of values of the functional expressing the performance criterion accord-ing to the records of passive observations,

$$\{\bar{x}^{(i)}, y_i\}(i = 1, 2, \ldots, z).$$

1/1
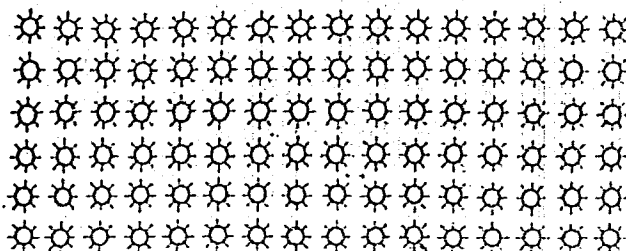
USSR   UDC 612.843.63-087.85

BELOSTOTSKAYA, Ye. M., and KANEVSKAYA, L. Ya., Central Institute for Advanced
Training of Physicians

"A Method for Determining the Rate of Information Processing by the Visual
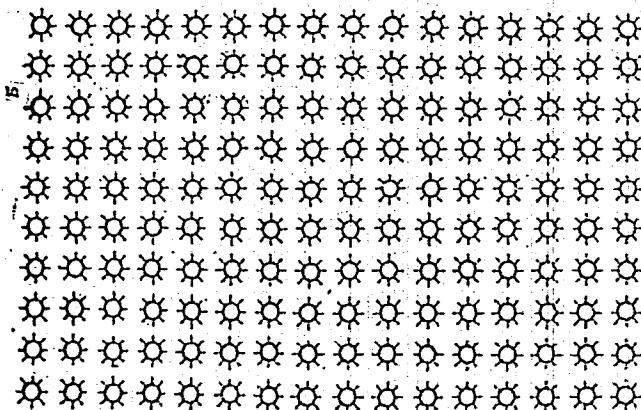Analysor"

Abstract: A proof-reading table is proposed as a device for testing the
speed and accuracy with which individuals can discriminate between useful
and useless information.

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BELOSTOTSKAYA, Ye. M., and KANEVSKAYA, L. Ya., Gigiyena i Sanitariya, No 12, 1970, pp 66-69

USSR

BELOSTOTSKAYA, Ye. M., and KANEVSKAYA, L. Ya., Gigiyena i Sanitariya, No 12, 1970, pp 66-69

The table consists of 16 parallel columns each containing 16 signal carriers (256 symbols). The carriers are circles 4 mm in diameter with 8 radial strokes 1.5 mm in length and projecting symmetrically from the circumference. The strokes represent noise. A useful signal is one with a noise signal, e.g., a stroke, missing. The distribution of the signals on the carriers and in the table is random. The individuals taking the test can be rated separately by the number of correct answers, mistakes, and omissions both in absolute terms and in relation to other subjects. The supplying of the signals and grading of the results can be easily automated through the use of simple electronic devices.

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USSR   UDC: 536.21+621.375.826

BELOSTOTSKIY, B. R., KUDRYASHEV, L. I., MEN'SHIKH, I. L.

"Nonlinear Problems in Cooling Strongly Anisotropic Optical Elements of Lasers"

Moscow, Kvantovaya Elektronika, Sbornik Statey, No 2(8), 1972, pp 23-29

Abstract: An approximate method is developed for linearizing the system of differential equations which describes tempera- ture distribution in strongly anisotropic elements of a laser optical system. The procedure can be used to evaluate the tem- perature state of an optical element of any configuration. Op- tical elements in the shape of a cylinder of finite length are considered by way of example. Bibliography of 9 titles.

1/1

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USSR

UDC 621.373.826:038.8

BELOSTOTSKIY, B. R.

"Selection of a Procedure for Calculating the Thermal Conditions of the Optical Elements of a Laser"

V sb. Kvant. elektronika (Quantum Electronics—collection of works), Moscow, No 5, 1971, pp 77-86 (from RZh-Radiotekhnika, No 1, 1972, Abstract No 1D341)

Translation: The possibilities of the most widespread methods of calculating the temperature field in the optical elements of pulse and continuous-action lasers were analyzed. The accuracy and the limits of their utilization were defined, and recommendations were made with respect to the most efficient application. It was demonstrated that when the thermophysical characteristics, the cooling conditions and the heat release function of the optical elements are known with the required accuracy, the exact solution of the problems of the temperature distribution is inexpedient. It is pointed out that a number of important problems have still not been analyzed by exact methods of solution. A study was made of the approximate procedure for calculating the temperature field in the optical element of a laser using the integral thermal conductivity ratio. An estimate was made of the accuracy of the recommended formulas. The optical element procedure with continuous heat release is discussed. The

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USSR

limits of application of the continuous approximation of pulse lasers are estab-
lished. The expediency of joint application of the calculation procedures
based on analyzing the integral condition of thermal conductivity and approxi-
mation of the continuous heat release is demonstrated. As a result it turns
out to be possible to investigate all possible operating conditions of the
optical elements. There are 4 illustrations and a 24-entry bibliography.

2/2

TITLE--BOILING DOWN OF PRODUCT I MASSECUITE FROM CONCENTRATED SIRUPS -U-

AUTHOR-(05)-BELOSTOTSKIY, G.S., SAVCHUK, N.K., MELNIK, V.I., KOT, YU.D.,
  BELOSTOTSKIY, L.G.
COUNTRY OF INFO--USSR

SOURCE--SAKH. PROM. 1970, 44(4), 48-51

DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FOOD TECHNOLOGY, SUCROSE, GRANULE FORMATION, PARTICLE SIZE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0301   STEP NO--UR/0339/70/044/004/0048/0051

CIRC ACCESSION NO--AP0135796
                        UNCLASSIFIED

2/2   014   UNCLASSIFIED   PROCESSING DATE--11DEC70
CIRC ACCESSION NO--AP0135796
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BOILING DOWN OF MASSECUITE
FROM CONCD. SIRUPS IS COMPARED WITH BOILING DOWN FROM AQ. MIXES. ON
EVAPG. A SIRUP CCNTG. SIMILAR TO 70PERCENT DRY SUBSTANCES IN VACUUM
WITHOUT JUICE MIXES OR AQ. MIXES, THE PRODUCTIVITY OF THE VACUUM
EVAPORATOR INCREASES BY 10PERCENT, THE COLOR INDEX OF THE SUGAR IS 0.1
UNIT LESS, AND THE REMAINING CRITERIA CHARACTERIZING MASSECUITE QUALITY
ARE NO WORSE THAN WITH MASSECUITE BOILED DOWN WITH THE AID OF AQ. OR
JUICE MIXES. THE PARTICLE SIZE DISTRIBUTION OF THE SUGAR CRYSTALS IS
ABOUT THE SAME WITH BOTH METHODS. THE METHOD IS RECOMMENDED FOR BOTH
CONCD. AND CONVENTIONAL SIRUPS.   FACILITY: SVEKLOSAKHAROTREST,
VINNITSY, USSR.

UNCLASSIFIED

1/2   014   UNCLASSIFIED   PROCESSING DATE--11DEC70
TITLE--BOILING DOWN OF PRODUCT I MASSECUITE FROM CONCENTRATED SIRUPS -U-

AUTHOR-(05)-BELOSTOTSKIY, G.S., SAVCHUK, N.K., MELNIK, V.I., KOT, YU.D.,
   BELOSTOTSKIY, L.G.
COUNTRY OF INFO--USSR

SOURCE--SAKH. PROM. 1970, 44(4), 48-51

DATE PUBLISHED------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--FOOD TECHNOLOGY, SUCROSE, GRANULE FORMATION, PARTICLE SIZE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0301   STEP NO--UR/0339/70/044/004/0048/0051

CIRC ACCESSION NO--AP0135796
                              UNCLASSIFIED

CIRC ACCESSICN NG--AP0135796
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE BOILING DOWN OF MASSECUITE
 FRGM CONCD. SIRUPS IS COMPARED WITH BOILING DOWN FROM AQ. MIXES. CN
 EVAPG. A SIRUP CCNTG. SIMILAR TO 70PERCENT DRY SUBSTANCES IN VACUUM
 WITHOUT JUICE MIXES GR AQ. MIXES, THE PRODUCTIVITY OF THE VACUUM
 EVAPCRATCR INCREASES BY 10PERCENT, THE COLOR INDEX OF THE SUGAR IS 0.1
 UNIT LESS, AND THE REMAINING CRITERIA CHARACTERIZING MASSECUITE QUALITY
 ARE NC WORSE THAN WITH MASSECUITE BOILED DOWN WITH THE AID OF AQ. OR
 JUICE MIXES. THE PARTICLE SIZE DISTRIBUTION OF THE SUGAR CRYSTALS IS
 ABOUT THE SAME WITH BOTH METHODS. THE METHOD IS RECOMMENDED FOR BOTH
 CONCD. AND CONVENTIONAL SIRUPS.   FACILITY: SVEKLOSAKHAROTREST,
 VINNITSY, USSR.

UNCLASSIFIED

Single Crystals

USSR

UDC 534.29

BELOSTOTSKIY, V. F., KASHEVSKAYA, O. N., and POLOTSKIY, I. G., Institute of
Metal Physics, Academy of Sciences Ukr SSR

"Dislocation Damping in Single Crystals of Molybdenum Irradiated by Ultrasound"

Kiev, Metallofizika, No 39, 1972, pp 54-57

Abstract: Dislocation damping in ultrasonically irradiated single crystals of
molybdenum was investigated in relation to vibration amplitude, irradiation
time, and annealing temperature. High-power ultrasonic oscillations with a
frequency of 20 hz were used for irradiation. Measurements were made by the
impulse method at a frequency of 10 Mhz. It was shown that with increased
amplitude of oscillations the damping level increases but is substantially
less than after plastic deformation, yielding a comparable dislocation density.
On the other hand, in the irradiation of plastically deformed samples, damping
is reduced. The increase in damping occurs in two temperature intervals--75-
150 and 250-600°C, between which a peak is situated with a maximum at 210°C.
The obtained results are discussed in the limits of the theory Cranato and
Licke. The conclusion is made that ultrasonic irradiation, along with increas-
ing dislocation density, leads to blocking of later point defects more sub-
stantially than by plastic deformation. In this aspect, ultrasonic irradiation
is analogous to the action of nuclear irradiation or low-temperature annealing.
3 figures, 10 bibliographic references.
1/1

USSR   UDC 539.4.019.3:669.24

POLOTSKIY, I. G., BELOSTOTSKIY, V. F., and KASHEVSKAYA, O. N., Kiev

"Effect of Ultrasonic Irradiation on the Microhardness of Nickel Single Crystals"

Abstract: A study was made of the effect of ultrasonic irradiation on the microhardness of nickel single crystals in relation to the magnitude of strain and irradiation time, and of the thermal stability of the strengthened nickel. Single crystals of nickel were grown by the Chokhral'skiy method in which nickel of 99.95% purity was used. The crystals were cut into flat plates and vacuum annealed at $1050^\circ C$ to remove internal stresses. Irradiation was done on a unit developed by G. YA. BAZELYUK. Change in microhardness ($\Delta H/H$) to strain ranged from a hardness of zero for 0 to 2 microns strains up to approximately 68 for a strain of 25 microns, where the curve levels off. It was noted that the greater the amount of strain the more rapid the strengthening and achieving of maximum microhardness. Also the thermal stability of strengthened nickel single crystals, as a result of ultrasonic irradiation, is better than after deformation by rolling. Four figures, 11 bibliographic references.
1/1

USSR

UDC 621.791.052.4.011:620.192.4:669.14.018.44

LAPTEV, A. A., LYUBALIN, P. M. (Candidates of Techn. Sciences), BELOTELOV, I. N., KULIKOV, F. R., and MANUYLOV, N. N. (Engineers)

"Certain Strength Characteristics of Weld Joints From VNS2 and VNS5 High-Strength Stainless Steels"

Moscow, Svarochnoye proizvodstvo, No 6, June 72, pp 29-31

Abstract: Argon-arc welding is widely used for welding structures from VNS2 and VNS5 high-strength stainless steels. It is not always possible, however, to heat-treat these structures after welding. Repeated heating in back runs may, therefore, affect the joint strength. The objective of this study was to rate the reliability of repaired structures in order to develop an efficient repair welding technology. Auxiliary welding without subsequent heat treating of argon-arc-welded butt joints from VNS5 steel markedly decreases their static strength. Welds from VNS2 steel are not affected to such an extent by auxiliary welding. Back runs of argon arc-welded butt joints from VNS2 steel substantially increase their susceptibility to cracking in blow-bending tests; this was not observed in joints from VNS5 steel. Surface plastic strain hardening of weld joints and weld-affected areas markedly increases the static strength of argon-arc

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USSR

LAPTEV, A. A., et al., Svarochnoye proizvodstvo, No 6, June 72, pp 29-31

welded joints from VNS2 and VNS5 steels and their combinations. Hardening
fully compensates for the drop in static strength caused by auxiliary
welding. Hardening hardly affects the susceptibility of weld joints to
cracking in blow-bending tests with the exception of weld joints made from
VNS2 + VNS5 steels. (2 illustrations, 3 tables)

2/2

USSR

UDC: 681.3:51

AYLAMAZYAN, A. K., BELOTELOV, V. P., DOLGOPOLOV, V. V., KRAVTSOV, V. G., LOZA, T. M., MARKINA, N. V., KHAKHIN, M. D.

"A Device for Computing Aerodynamic Parameters"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 23, 1970, Author's Certificate No 276528, Filed 28 May 69

Abstract: This Author's Certificate introduces a device for computing aerodynamic parameters such as altitude, velocity, and Mach number. The unit contains converters of primary information to binary code which are connected through a shift register and adder to the input of an arithmetic device. Also included in the computer are a memory unit, decoder, pulse generator, control device, and recording unit. As a distinguishing feature of the patent, the electrical circuit is simplified and the overall dimensions are reduced by connecting the most significant digital places of one of the registers in the arithmetic device to the least significant digital places of the address section of the command register in the control unit through diodes controlled by the decoder and the pulse generator. The most significant digital places of the address section and the code section of the command register in the control device are connected to the memory unit.
1/1

1/2   038   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--DETERMINATION OF THE VELOCITY FIELD AT THE ENTRANCE TO AN AXIAL
STAGE WORKING IN LOW VACUUM MODES -U-
AUTHOR-(04)-BELOTELOVA, L.N., SUKHOMLINOV, I.YA., KHMARA, V.N., LUBENETS,
V.D.
COUNTRY OF INFO--USSR

SOURCE--MOSCOW, IVUZ MASHINOSTROYENIYE, NO 1, JAN 70, PP 72-76

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--AXIAL FLOW TURBINE, TURBINE FLOW, TURBINE STAGE, FLOW
  VELOCITY, CALCULATION, VACUUM MECHANICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0232   STEP NO--UR/0145/70/000/001/0072/0076

CIRC ACCESSION NO--AP0103894
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0103894

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE PRESENTS A METHOD FOR
CALCULATING THE VELOCITY FIELD AT THE ENTRANCE TO AN AXIAL VACUUM STAGE
WHICH DEPENDS ON THE FLOW MADE IN THE FLOW THROUGH SECTION OF THE STAGE.
THE RESULTS OF CALCULATION ACCORDING TO THE PRESENTED METHOD AND THEIR
COMPARISON WITH EXPERIMENTAL DATA ARE GIVEN.   THE COMPUTATIONS ARE
BASED ON RESULTS OBTAINED FOR THE HYDRODYNAMIC ENTRANCE REGION OF A FLAT
DUCT BY R. GUPTA (JOURNAL OF THE AMER. INST. OF CHEM. ENG., VOL 11, NO
6, 1965). THE CALCULATION ERROR, WHICH AMOUNTS TO APPROXIMATELY 10
PERCENT, INCREASES WITH INCREASED INTENSITY OF CHANGE IN THE INITIAL
VELOCITY VERTICALLY WITHIN THE DUCT.   FACILITY: MOSCOW HIGHER
TECHNICAL SCHOOL IMENI N. E. BAUMAN.

UNCLASSIFIED

USSR   UDC 621.51

SUKHOMLINOV, I. YA. (Candidate of Technical Sciences), BELOTELOVA, L. N. (Aspirant), KIMARA, V. N. (Candidate of Technical Sciences), and LUBENETS, V. D. (Doctor of Technical Sciences), Moscow Higher Technical School imeni N. E. Bauman

"Determination of the Velocity Field at the Entrance to an Axial Stage Working in Low Vacuum Modes"

Abstract: The article presents a method for calculating the velocity field at the entrance to an axial vacuum stage which depends on the flow made in the flow-through section of the stage. The results of calculation according to the presented method and their comparison with experimental data are given. The computations are based on results obtained for the hydrodynamic entrance region of a flat duct by R. Gupta (Journal of the Amer. Inst. of Chem. Eng., Vol 11, No 6, 1965). The calculation error, which amounts to approximately 10 percent, increases with increased intensity of change in the initial velocity vertically within the duct.

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USSR

UDC: 621.762:669.018.29(088.8)

BELOTSERKOVSKIY, A. M.

"Method of Manufacture of Metal Ceramic Products"

USSR Author's Certificate Number 358087, Filed 15/09/69, Published 26/12/72 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G419P, by S. Krivonosova).

Translation: A method is suggested for manufacturing metal ceramic products of Ti-containing powders, including Ti production wastes. The method includes pressing and repeated cyclical heating to the sintering temperature. In order to increase the productivity of the process and improve the mechanical properties of the products produced, after pressing the products are covered with a gas-impermeable refractory envelope, then heated in air at a rate of 40-60 degrees per second and plastically deformed under hydrostatic compression with cooling to 600-700° between cycles. The bars produced by this method from Ti production wastes have the following properties: tensile strength 40 kg/mm^2, δ 4-6%, porosity less than 1%, HB 180.

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USSR

BELOTSERKOVSIY, O. M. and DAVYDOV, Yu. M.

UDC: 517.9:533.7

"Computing Transsonic 'Supercritical' Flow Modes by the 'Coarse Particles' Method"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki, No 1, 1973, pp 147-171

Abstract: A description of the method of "coarse particles" is given in an earlier article by the authors of the present paper (Nestatsionarnyy metod "krupnykh chastits" dlya resheniya zadach vneshney aerodinamiki -- The Nonstationary "Coarse Particles" Method for Solving Problems in External Aerodynamics -- Moscow, Reprint, VTs AN SSSR, 1970) as applied to eddy problems in gas dynamics. The same method can be used to obtain a picture of the flow of fluids around bodies of various forms in a wide range of changes of initial conditions, from purely subsonic to supersonic situations, including transitions through the speed of sound, and in sonic and "supercritical" flow. The description of a computational algorithm derived from the "coarse particles" method is given, and it is shown how complex problems in aerodynamics can be solved by applications of the method. A bibliography of 23 titles is appended.
1/1

USSR

BELOTSERKOVSKIY, A. S.

"The Principle of Maximum Stability"

Teoriya Igr [Games Theory -- Collection of Works], Yerevan, 1973, pp 70-73 (Translated from Referativnyy Zhurnal Kibernetika, No 10, 1973, Abstract No 10V452)

Translation: Stability in a non-coalition game means the sum of deviations of wins in a given situation from the maximum win in the given situation upon variation of the corresponding strategy. It is selected that the maximum stable situations be selected. Their relationship with equilibrium situations is studied.

I. Vrublevskaya

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USSR   UDC 518.9

BELOTSERKOVSKIY, A. S.

"Exchange of Information in Uncooperative Games of Two Persons"

Kibernetiku -- na Zluzhbu Kommunizmu. T. 6 [Cybernetics in the Service of Communism, Vol 6 -- Collection of Works], Moscow, Energiya Press, 1971, pp 190-201, (Translated from Referativnyy Zhurnal, Kibernetika, No 10, 1971, Abstract No 10 V670 by A. Mikhaylova).

Translation: The selection of strategies based on the capabilities of the players at fixed moments in time to inform each other reliably concerning a decrease in the set of their strategies is studied in a non-coalition game of two players. The players use the maximin principle. The selection of strategies is performed according to the following principles: the players do not use dominating strategies (dominence principle); if the strategies among which each player makes his selection are equivalent, he selects the strategy giving the greatest win to the other player (principle of benevolence). These principles in combination with the maximin principle allow the initial game to be reduced to a game with a narrower area of change of strategies of the two players. An example is presented.

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Fluid Dynamics

BELOTSERKOVSKIY, O. M.; SEVERINOV, L. I., Moscow

"Conservative Method of 'Fluxes' and Calculation of the Flow of a Viscous Heat-Conducting Gas Around a Solid of Finite Dimensions"

Abstract: A method is proposed for numerical solution of problems in gasdynamics. The procedure is based on approximating laws of conservation written out for each cell of a difference net. In field variables the method generates an explicit asymmetric difference scheme and is conservative with respect to mass, momentum, and total energy in virtue of the method of constructing and organizing the computations. Examples are given of calculations of the flow of a viscous heat-conducting gas around a sphere with a given surface temperature. The results show that the method of fluxes can be used to study flows around solids of finite dimensions in a wide range of Reynolds numbers up to those where the gas is nearly ideal.

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1/2   013
TITLE--CHANGES IN THE POROUS STRUCTURE AND GAS PERMEABILITY OF POROUS
GLASS IN RELATION TO HEAT TREATMENT CONDITIONS -U-
AUTHOR-(03)-MASHKOVSKIY, I.K., BELOTSERKOVSKIY, G.M., PLACHENOV, T.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(1) 87-92

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--POROSITY, GLASS STRUCTURE, PERMEABILITY MEASUREMENT, PLATE
GLASS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0335   STEP NO--UR/0080/70/043/001/0087/0092

CIRC ACCESSION NO--AP0103990
UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0103990
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   IT IS POSSIBLE TO CHANGE THE
POROUS STRUCTURE OF GLASS PLATE AND ITS GAS PERMEABILITY OVER VERY WIDE
LIMITS BY VARYING THE HEAT TREATING TEMP. AND TREATMENT DURATION; E.G.
HEAT TREATMENT AT 550 TO 680DEGREES FOR 40 MIN INCREASES THE GAS
PERMEABILITY BY 7 FOLD.

UNCLASSIFIED

TITLE--RESISTANCE OF THE POROUS STRUCTURE OF SILICA GELS PREPARED FROM
CONCENTRATED AQUEOUS SOLS OF SILICIC ACID TO THERMAL TREATMENT -U-

AUTHOR--BELOTSERKOVSKIY, G.M., DOBRUSKIN, V.KH., KIREYEVA, G.YE.,
PLACHENOV, T.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(2), 445-7

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SILICA GEL, ISOTHERM, GAS ADSORPTION, VAPOR STATE, SOLUTION
CONCENTRATION, AQUEOUS SOLUTION, BENZENE, POROSITY, THERMAL EFFECT,
VACUUM CHABER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/0920   STEP NO--UR/0080/70/043/002/0445/0447

CIRC ACCESSION NO--AP0053844
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0053844

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ADSORPTION QUALITY OF 2 BRANDS
OF SILICA GEL WHICH WERE HEATED TO 200, 550, AND 750DEGREES WAS TESTED
BY TAKING THE ADSORPTION ISOTHERMS OF C SUB6 H SUB6 VAPOR AT 20DEGREES
AND OF N AT MINUS 196DEGREES BY MEANS OF A QUARTZ COIL IN A VACUUM
CHAMBER EQUIPPED WITH A BALANCE. THE QUALITY OF THE GEL AT ELEVATED
TEMPS. AND ITS RESULTING POROUS STRUCTURE DEPEND MAINLY ON THE AMT. OF
RESIDUAL ALKALIES IN SILICA GEL FROM THE MANUFACTURING PROCESS. WHEN
THE ALKALIES WERE WASHED WITH HCL AND H SUB2 O, THE POROSITY AFTER HEAT
TREATMENT WAS BEST. THE RESULTS OBTAINED WERE VERIFIED BY MEASUREMENTS
OF D. AND OF SP. SURFACE.

UNCLASSIFIED

1/2   028   UNCLASSIFIED   PROCESSING DATE--04DEC70

TITLE--A POSSIBLE MEANS OF MEASURING THE TEMPERATURE OF THE NEUTRAL
COMPONENT OF THE UPPER ATMOSPHERE ABOVE 150 KM -U-

AUTHOR-(02)-BELOTSERKOVSKI, M.B., SOKOLOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--KOSMICHESKIE ISSLEDOVANIIA, VOL. 8, MAY-JUNE 1970, P. 470-473

DATE PUBLISHED-------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES

TOPIC TAGS--UPPER ATMOSPHERE, TEMPERATURE, CHARGED PARTICLE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605013/C07 STEP NO--UR/0293/70/008/000/0470/0473

CIRC ACCESSION NO--AP0140376
                            UNCLASSIFIED

CIRC ACCESSION NO--AP0140376

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF THE POSSIBILITY OF
DETERMINING THE TEMPERATURE OF THE NEUTRAL COMPONENT OF THE UPPER
ATMOSPHERE FROM THE THERMAL SPREAD OF A BEAM OF CHARGED PARTICLES
SINGLED OUT OF THE ATMOSPHERE BY A DIAPHRAGM IN A PLATFORM MOVING AT A
VELOCITY MUCH HIGHER THAN THE PROBABLE PARTICLE VELOCITY, AND LOCATED
NORMAL TO THE VELOCITY VECTOR. A QUANTITATIVE OUTLINE OF THE
CAPABILITIES OF THIS METHOD IS PRESENTED, AND THE ERROR INVOLVED IN ITS
APPLICATION IS ASSESSED. MEANS OF REALIZING THE METHOD IN PRACTICE ARE
EXAMINED.

UNCLASSIFIED

USSR

UDC 533.6.011

BELOTSERKOVSKIY, O. M., FOMIN, V. N.

"Study of the Supersonic Flow of a Radiating Gas Over Blunt Bodies"

Translation: Some final results from the application of the integral relationships method and the characteristics method to a study of hypersonic flow of an ideal irradiating gas over axisymmetric blunt bodies are presented. The radiation transfer calculation was made by the spherical harmonics method which reduced an integrodifferential system of equations for radiation gasdynamics to a differential system. The selectivity of the radiation for air was taken into account by substituting actual values of the spectral absorption coefficient with step functions in terms of frequency. Graphical results

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USSR

BELOTSERKOVSKIY, O. M., FOMIN, V. N., Tr. Sektsii po chisl. metodam v gaz. dinamike 2-go Mezhdunar. kollokviuma po gazodinamike vzryva i reagiruyush-chikh sistem, 1969, T. 3, Moscow, 1971, pp 154-178

of the calculations of the fields of the gasdynamic parameters in the shock layer, hypotheses and the forms of the shock wave and radiant heat flows are given. 9 ref. G. A. Tirskiy.

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USSR   UDC: 533.6.011

BELOTSERKOVSKIY, O. M., DAVYDOV, YU. M.

"Investigation of Schemes of the Method of 'Large Particles' by Means of Differential Equations"

Moscow, Probl. Prikl. Mat. i Mekh -- Sbornik (Problems of Applied Mathematics and Mechanics -- Collection of Works), Nauka, 1971, pp 145-155 (from Referativnyy Zhurnal, Mekhanika, No 2, Feb 72, Abstract No 2B266, Authors' Abstract)

Translation: A number of schemes of the method of "large particles" is investigated by means of differential approximations. First, a brief description is given of the method of "large particles," the various difference schemes of which are subsequently analyzed. By means of the consideration of a zeroth-order approximation, it is established that the difference-equation system of the method of "large particles" is of the first order of accuracy both within the analyzed region and on its boundary. An analysis of the first and second differential approximations explains the viscosity effects of the difference scheme. Investigation of the first and second differential approximations makes it possible to analyze the stability of the solution. It is shown that one difference scheme of the method of "large particles" (use of formulas of the first order of exactness for the mass flux delta M^{i+1}) yields a stable solution, while another (use of formulas of the second order of exactness for delta M^{i+1}) is stable only when an explicit term of synthetic viscosity is introduced. 8 references.
1/1

ACC NR: AM8017897   Monograph   *B. 15 14 1*   UR/

Belotserkovskiy, O. M.; Bulekbayev, A.; Golomazov, M. M.; Grudnitskiy, V. G.; Dushin, V. K.; Ivanov, V. F.; Lun'kin, Yu. P.; Popov, F. D.; Ryabinkov, G. M.; Timofeyeva, T. Yu.; Tolstykh, A. I.; Fomin, V. N.; Shagayev, F. V.

Supersonic gas flow over blunt bodies;theoretical and experimental research (Obtekaniye zatuplennykh tel sverkhzvukovym potokom gaza; teoreticheskoye i eksperimental'noye issledovaniya)2d.ed.,rev. and enl.Moscow,VTs AN SSSR, 67. 04000 p. illus.,biblio.,tables. Errata slip inserted. 1,700 copies printed. Series note: Akademiya nauk SSSR. Vychislitel'nyy tsentr.

TOPIC TAGS: supersonic aerodynamics, supersonic flow, blunt body, equilibrium flow, nonequilibrium flow, viscous flow, unsteady flow, flow analysis, mathematic method, experiment aerodynamics, gas flow

PURPOSE AND COVERAGE: This is a revised and enlarged edition of a monograph published by the Computing Center of the Academy of Sciences, USSR, summarizing the results of theoretical and experimental investigations of supersonic gas flows past blunt bodies, conducted during recent years by a group of Soviet specialists in aerodynamics under the leadership of O. M. Belotserkovskiy. The theoretical studies are concerned primarily with the development of mathematical

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ACC NR: AM8017897

algorithms for numerical schemes of Dorodnitsyn's method of integral relations applied by Belotserkovskiy to calculations of mixed flows in a region with unknown boundary. Certain peculiarities of applying this method to the solution of problems of supersonic flows, such as flow accompanied by chemical reactions or radiation, viscous flow, flow over bodies with contour discontinuity, etc., are discussed. The construction of numerical algorithms is described, and their use for the solution of supersonic flow problems is demonstrated. A series of computations are presented of supersonic flows of a perfect gas with constant specific heat ratio, flows with equilibrium and nonequilibrium dissociation, with ionization, with vibrational-dissociating relaxation, and with radiation. The experimental investigations conducted currently with theoretical ones and their results are described.

TABLE OF CONTENTS [abridged]:

Card 2/3

ACC NR: AM8017897

SUB CODE: 01/ SUBM DATE: none/ ORIG REF: 068/ OTH REF: 022

AND0017048

B

UR9007

TITLE--   GET ACQUAINTED WITH THE FIZTEKH /MOSCOW PHYSICAL-
TECHNICAL INSTITUTE, MFTI/

NEWSPAPER--   KOMSOMOL,SKAYA PRAVDA, JANUARY 31, 1970, P 4, COLS 1-6

ABSTRACT--   ACCORDING TO OLEG MIKHAYLOVICH BELOTSERKOVSKIY, PRESI-
DENT OF THE MFTI, THE INSTITUTE GREW OUT OF THE PHYSICAL-TECHNICAL
SCHOOL OF THE MOSCOW STATE UNIVERSITY ESTABLISHED IN 1946.   FROM ITS
INCEPTION, THE INSTITUTE HAS PRACTICED A NEW APPROACH TO TRAINING
FUTURE ENGINEERS AND SCIENTISTS.   SPECIAL CHAIRS WERE INSTITUTED AT
RESEARCH INSTITUTES.   THESE CHAIRS ARE KNOWN AS "BASE CHAIRS"
/BAZOVYYE KAFEDRY/.   IN EFFECT, THE STUDENT GAINS THE THEORETICAL
KNOWLEDGE AT THE MFTI AND THE APPLIED RESEARCH TRAINING AT THE BASE
CHAIRS.   TRAINING IN APPLIED RESEARCH BEGINS DURING THE SECOND OR
THIRD YEAR.   THE STUDENTS OF THE MFTI ARE BASICALLY CONSCRIPTED FROM
THE INSTITUTE-SPONSORED PHYSICAL-TECHNICAL CORRESPONDENTS SCHOOL WITH
A STUDENT BODY OF 2,000.   BESIDES, 400 MOSCOW SCHOOL CHILDREN ARE
ATTENDING NIGHT SCHOOLS WHERE THEY ARE TAUGHT BY STUDENTS AND GRADU-
ATE STUDENTS OF THE MFTI.

1/2   19600211   /2

AN0017048

THE "BASE" CHAIRS OF THE MFTI ARE SCATTERED ALL OVER MOSCOW. SOME
STUDENTS SPEND WEEKS AT RESEARCH OR DESIGN BUREAUS IN MOSCOW SUBURBS.
A YEAR AGO A GROUP OF STUDENTS OF THE SCHOOL OF MANAGEMENT AND
APPLIED MECHANICS TRAVELLED TO THE INSTITUTE OF CYBERNETICS IN KIYEV
TO COMPLETE THEIR EDUCATION UNDER ACADEMICIAN V. M. GLUSHKOV.

THE INSTITUTE HAS DIRECT TIES WITH INDUSTRY AND TRIES, ABOVE ANYTHING
ELSE, TO SATISFY THE NEEDS IN NEW INDUSTRIAL FIELDS.

RECENTLY, THE MFTI HAS ESTABLISHED A NEW SCHOOL /FAKUL,TET/, THE
SCHOOL OF MANAGEMENT AND APPLIED MATHEMATICS /FUPM/.

THE ARTICLE MENTIONS OLEG MIKHAYLOVICH RADKEVICH, GRADUATE OF THE
MFTI AND DEAN OF ITS SCHOOL OF GENERAL AND APPLIED PHYSICS,
N. KHLEBOV, A SIX-YEAR STUDENT, AND S. RUDIN, A FOURTH-YEAR STUDENT.

19600212

UNCLASSIFIED   PROCESSING DATE--23OCT70

TITLE--ERRORS IN THE REPRODUCTION OF THE PROGRAM OF MOBILE TELEGAMMA THERAPY -U-

AUTHOR--BELOTSERKOVSKIY, S.E.

COUNTRY OF INFO--USSR

SOURCE--MEDITSINSKAYA RADIOLOGIYA, 1970, VOL 14, NR 5, PP 31-35

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IRRADIATION APPARATUS, MEDICAL APPARATUS, GAMMA RADIATION

CONTROL MARKING--NO RESTRICTIONS'

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0283

STEP NO--UR/0241/70/015/005/0031/0035

CIRC ACCESSION NO--AP0120972

UNCLASSIFIED

CIRC ACCESSION NO--AP0120972

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BASING UPON INVESTIGATIONS OF
MECHANICAL CONSTRUCTIONS AND SYSTEMS OF CONTROL OF "VOLFRAM" AND "ROKUS"
GAMMA APPARATUS, AS WELL AS THE DOSE DISTRIBUTION, THE AUTHOR
ESTABLISHED ANALYTICAL RELATIONS DETERMINING THE VALUE OF INSTRUMENTAL
ERROR OF GAMMA APPARATUS IN DIFFERENT MOBILE IRRADIATIONS. THE TOTAL
MEAN QUADRATIC ERROR OF DISPLACEMENT OF THE CENTER OF REGION OF DOSE
MAXIMUM FROM THE PREDICTED SITE OF IRRADIATED VOLUME SI PROPOSED AS
SUCH. WITH DUE ACCOUNT IN ADVANCE OF THE ERROR VALUE ONE COULD
DETERMINE THE MAXIMAL ADMITTANCE FOR THE MAIN PHYSICO TECHNICAL
CHARACTERISTICS OF MOBILE GAMMA THERAPEUTIC APPARATUS.

UNCLASSIFIED

USSR

UDC:533.6.013.122

BELOTSERKOVSKIY, S. M., NISHT, M. I., Moscow

"Study of Peculiarities of Flow Around a Plate at High Angles of Attack"

Moscow, Mekhanika Zhidkosti i Gaza, No 5, Sep-Oct 73, pp 110-116

Abstract: The method of discrete vortices is used to perform a detailed analysis of the peculiarities of separating flow around a plate of infinite span at angles of attack $0 < \alpha \leq 90°$. The flow diagram, based on the model of an ideal fluid, allows the characteristic features of the separating flow to be determined. For example, the continuous vortex sheet breaks up in time, forming vortex clusters similar to Karman vortex streets. The loads have characteristic "levels," observed experimentally. As separation develops, the flow begins to change periodically with time. The period and amplitude of the oscillations of normal force increase with increasing angle of attack. The center of pressure is located near the center of the chord.

1/1

USSR   UDC 533.6.013.122

BELOTSERKOVSKIY, S. M. and NISHT, M. I.

"Calculation of Stalled Unsteady Flow Past a Thin Profile"

Abstract: A numerical method is presented for the calculation of unsteady
flow past a thin profile, with stalling at the leading edge and at the trail-
ing edge. The relationship of the boundary conditions to the coordinates and
to time may be arbitrary, and the angle of attack of the profile may be large.
The idea of the method consists in a transition from continuous distributions
and processes to discrete ones. In the first place, the vortex layer which
replaces the wing and its weight in the calculations is simulated by a system
of discrete vortexes which constitute rectilinear infinite filaments, with
constant circulation with respect to length. Secondly, the continuous pro-
cess of change of the boundary conditions on the profile with respect to time
is replaced by a stepwise process; at specific (calculated) moments of time
these conditions change jumpwise, remaining constant between the calculated
moments.
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USSR

The proposed method permits calculation of the entire transient process. It is generalized with relative ease to the three-dimensional case of flow past a thin wing of arbitrary shape. 3 figures. 7 references.

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USSR

BELOTSERKOVSKIY, S. M., Moscow

"The Theorem of Reversibility for a Wing With Arbitrary Dependences on Time"

Moscow, Mekhanika Zhidkosti i Gaza, No. 5, Sep-Oct 70, pp 132-139.

Abstract: The integral relationship is established between the boundary conditions and the corresponding aerodynamic loads on direct and inverse wings. The inverse wing is produced by inversion of the motion of the direct wing relative to the main forward velocity u_0. The use of this theorem with stable motion and harmonic dependences on time allows simplification of the determination of the summary characteristics of deformable wings. It is demonstrated that with arbitrary dependences on time t, all the summary characteristics of the direct and inverse wings of any form in plan with all t are expressed by each other. Formulas are concluded allowing determination of the lift and torque arising in a deformed wing, including with deflected ailerons and flats if the corresponding problems are solved for the motion of the rigid inverse wing. All of the statements are correct both for subsonic and supersonic speeds.

1/1   - 8 -

1/2   034   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--CALCULATION OF THE ACTION OF A GUST ON A WING WITH SUBSONIC LEADING
  AND TRAILING EDGES -U-
AUTHOR-(02)-BELOTSERKOVSKIY, S.M., POPYTALOV, S.A.

COUNTRY OF INFO--USSR

B

SOURCE--AKADEMIIA NAUK SSSR, IZVESTIIA, MEKHANIKA ZHIDOSTI I GAZA,
  MAR.-APR. 1970, P. 92-100
DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--AIRCRAFT WING, AERODYNAMIC FORCE, AERODYNAMIC CHARACTERISTIC,
  GUST LOAD, NUMERIC SOLUTION, MACH NUMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1390   STEP NO--UR/0421/70/000/000/0092/0100

CIRC ACCESSION NO--AP0125038
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0125038

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEVELOPMENT OF A NUMERICAL METHOD
FOR THE SOLUTION (IN LINEAR FORMULATION) OF THE PROBLEMS OF DETERMINING
THE DISTRIBUTED AND OVERALL AERODYNAMIC CHARACTERISTICS OF DEFORMABLE
AND RIGID WINGS IN THE CASE OF ARBITRARY AND HARMONIC TIME DEPENDENCES
OF THE MOTION PARAMETERS AND DEFORMATION PARAMETERS. THE METHOD HOLDS
FOR WINGS OF ARBITRARY PLANFORM (INCLUDING VARIABLE GEOMETRY WINGS AND
WINGS WITH CURVILINEAR EDGES). IT IS SUITABLE FOR DETERMINING THE
UNSTEADY CHARACTERISTICS OF WINGS EVEN OF COMPLEX PLANFORM WITH
SUPERSONIC, TRANSONIC, AND SUBSONIC LEADING EDGES. RELATIONS ARE
DERIVED, USING WHICH THE TRANSIENT FUNCTIONS OF DISTRIBUTED AND OVERALL
CHARACTERISTICS OF WINGS OF ARBITRARY PLANFORM CAN BE DETERMINED AT AN
INITIAL MOMENT OF TIME FOR ANY FLIGHT MACH NUMBER.

UNCLASSIFIED

USSR   UDC 612.766.1+613.72/.73

KARPMAN, Prof. V. L.; BELOTSERKOVSKIY, Z. B.; LYUBINA, B. G.;
Cardiology Laboratory, Central Institute of Physical Culture,
Moscow

"Study of Physical Work Capacity in Sports Medicine and Clinical
Practice"

Abstract: Cumbersome graphic extrapolation in the determination
of the physical working capacity at 170 heartbeats per minute
(PWC_{170}) according to T. Sjoestrand (Acta Med. Scand., Suppl.
196, p 687, 1947) can be avoided if the formula PWC_{170} (kgm/min)$=$
$N_1 + (N_2 - N_1) \cdot \left(\dfrac{170 - f_1}{f_2 - f_1} \right)$ is used, where N_1 and N_2 are the
respective outputs in kgm/min of two successive physical exer-
tions on a bicycle ergometer, and f_1 and f_2 the pulse rates
registered 5 min after the first and second exertions. Tests
carried out on men athletes, women athletes, and men and women
not engaged in athletics showed that a simple linear relation

1/2

USSR

KARPMAN, Prof, et al, <u>Sovetskaya Meditsina</u>, Vol 34, No 2, Feb 71,
pp 103-109

between f and N applied in the $f \leqq 170$ range in each of the four
groups except that of men athletes, for which the increase of f
with N at $N > 1,500$ kgm/min became less pronounced. By using the
values of PWC_{170} calculated for the test subjects on the basis
of the formula, the maximum O_2 consumption max V_{O_2} could be cal-
culated from the formula max V_{O_2} (ml/min) $= 1.7 \ X^2 PWC_{170} + 1,240$.
Use of this formula made it possible to determine max V_{O_2} without
subjecting the persons being tested to a muscular strain of a
trying nature. The values of PWC_{170} and max V_{O_2} were found to be
statistically valid and reliable indexes of physical performance.

2/2

USSR

BELOTSKIY, A. V., DUKHOTA, P. V., and PERMYAKOV, V. G., Kiev
Polytechnic Institute

UDC 621.785.532:669.1'295

"Phase and Structural Changes in Nitriding of Iron Alloyed With
Titanium"

Abstract: The authors studied iron-titanium alloys containing
0.35, 0.95, 1.32, 1.96, 2.39, and 2.83 wt. percent Ti. The alloys
were smelted in an induction furnace in an argon atmosphere.
Following homogenizing annealing, the alloys underwent forging,
then drawing or cold rolling. Before nitriding, the specimens
were annealed at 950° C for five hours to obtain a coarse-grained
structure facilitating microstructural observations of diffusion
layer variations. The alloys were nitrided at temperatures up
to 500° C directly in an X-ray chamber, or at 500, 550, and 600° C

1/2

USSR

BELOTSKIY, A. V., et al., Metallovedeniye i Termicheskaya
Obrabotka Metallov, No 8, 1971, pp 40-42

in a laboratory furnace in a dissociated ammonia environment
with a 10-40 percent dissociation degree and a holding time of
up to six hours. Changes in the phase composition and structure
of the diffusion layers were monitored by the methods of nigh-
temperature roentgenography, microstructural analysis,and micro-
hardness.

The results indicate that the surface hardening of iron-
titanium alloys by nitriding should be done at a titanium concen-
tration not exceeding 1.3-1.5 percent. Obtained in the process
are diffusion layers with high microhardness and good cohesion
with the base. In alloys with a higher titanium content the
amount of nitrogen that dissolves during nitriding is such that
nitrogen phase formation is accompanied by a sharp increase in
volume, which embrittles the layer and causes cracking.

2/2

USSR

BELOTSKIY A. V., [illegible] and [illegible]
Institute

"Properties of 60S2 Steel After Nitriding"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, [illegible], pp [illegible],
55-60

Abstract: A study was made of the effect of nitriding on the [illegible]
fatigue strength, and corrosion resistance of 60S2 spring steel. [illegible]
of the following chemical composition was used: 0.58% C; 1.8% [illegible]
0.02% Cr; 0.02% S; and 0.022% P. Specimens 50 x 5 x 0.5 [illegible] in a
x-ray chamber in an atmosphere of dissociated ammonia. [illegible] at [illegible] C
considerably increased the surface hardness of the metal. [illegible] nitriding
at 650-750° C with subsequent hardening led to the forming of a dense layer
of nitrous-carbonic martensite with a high degree of hardness. The nitriding
of springs made of 60S2 steel raised the fatigue strength [illegible] corrosion
resistance in water and aqueous salt and soda solutions.

1/1

1/2   023   UNCLASSIFIED   PROCESSING DATE--11SEP70
TITLE--PREPARATION OF SINGLE CRYSTALS AND STUDY OF THE CADMIUM IODIDE
    STANNOUS IODIDE SYSTEM BY FUSIBILITY AND ELECTRICAL RESISTANCE METHODS
AUTHOR--BELOTSKIY, D.P., NADTOCHIY, V.F., TKACHUK, L.F.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(1) 30-3

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--CHEMICAL SYNTHESIS, SINGLE CRYSTAL, ELECTRIC CONDUCTIVITY,
    GRAPHIC TECHNIQUE, SEMICONDUCTOR MATERIAL, IODIDE, TIN COMPOUND, CADMIUM
    COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1325   STEP NO--UR/0073/70/035/001/0030/0033

CIRC ACCESSION NO--AP0107798
ZZZZZZZZZZZZZ   UNCLASSIFIED

CIRC ACCESSION NO--AP0107798
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CDI SUB2, SNI SUB2 AND MIXTS. WERE
  PREPD. BY REACTION OF THE METAL OR METAL MIXT. AND I SUB2 IN SEALED
  AMPULS. THE AMPULS WERE HEATED IN TWO OVENS, ONE ABOVE AT A SOMEWHAT
  LOWER TEMP. AND A LOWER ONE AT A HIGHER TEMP. THE TEMPS. AND REGIME OF
  HEATING VARIED WITH THE METAL. SINGLE CRYSTALS WERE OBTAINED BY ZONE
  CRYSTN. THE CDI SUB2, SNI SUB2 SYSTEM HAS A EUTECTIC AT 70 MOLE PERCENT
  SNI SUB2, M. AT 305DEGREES. THE SOLY. OF TEMP. IS THAT OF
  SEMICONDUCTORS. GRAPHS ARE GIVEN AND ALSO GRAPHS OF RESISTANCE AGAINST
  COMPN. WHICH CHANGES MARKEDLY WITH THE PHASES PRESENT.

UNCLASSIFIED

1/2   021   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--INDIUM TELLURIDE ANTIMONY TELLURIDE SYSTEM -U-

AUTHOR-(02)-BELOTSKIY, D.P., BABYUK, P.F.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 572-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--INDIUM COMPOUND, ANTIMONY COMPOUND, TELLURIDE, BRITTLENESS,
EUTECTIC, THERMAL ANALYSIS, INTERMETALLIC COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0896   STEP NO--UR/0363/70/006/003/0572/0574

CIRC ACCESSION NO--AP0118065
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0118065

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE In_2Te_3 Sb_2Te_3 SYSTEM WAS STUDIED BY THERMAL, X RAY PHASE, AND MICROSTRUCTURAL ANAL. METHODS OVER THE ENTIRE CONCN. RANGE. INDIVIDUAL In_2Te_3 AND Sb_2Te_3 COMPDS. SERVED AS THE STARTING MATERIALS. THE COMPNS. WITH A LARGE Sb_2Te_3 CONTENT POSSESSED A METALLIC LUSTER AND HIGH BRITTLENESS. THE PHASE DIAGRAM FOR THE In_2Te_3 Sb_2Te_3 SYSTEM WAS CONSTRUCTED FROM THE HEATING CURVES. THE CHANGE IN THE LATTICE PARAMETER WITH CHANGING CONTENT OF THE 2 COMPDS. PRESENT IS DISCUSSED IN TERMS OF THE VACANCY CONCN. AND THE CHEM. BONDS. THE SOLY. OF Sb_2Te_3 IN In_2Te_3 IS SMALLER THAN 1 MOLE PERCENT. THE EUTECTIC IS AT 55 MOLE PERCENT In_2Te_3 AND 595DEGREES AND NOT AT 70 MOLE PERCENT In_2Te_3 AS PREVIOUSLY REPORTED. THE PRESENCE OF SOLID SOLNS. FROM THE Sb_2Te_3 SIDE AT THE EUTECTIC TEMP. IS OBSERVED TO 40 MOLE PERCENT; In_2Te_3, AT 520DEGREES IT IS OBSERVED TO 35 MOLE PERCENT In_2Te_3, AND AT 450DEGREES, TO 30 MOLE PERCENT IN In_2Te_3.   FACILITY: CHERNOVITS. GOS. UNIV., CHERNOVTSY, USSR.

TITLE--COLOR INDEX PHENOMENA IN CHALCONES AND RELATED COMPOUNDS. III. ELECTRONIC ABSORPTION SPECTRA OF 4 PRIME, AND 3

AUTHOR-(02)-MAGDEYEVA, R.K., BELOTSVETOV, A.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(1), 66-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON SPECTRUM, BENZENE DERIVATIVE, ACETONE, ELECTRON DONOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0785   STEP NO--UR/0153/70/013/001/0066/0069

CIRC ACCESSION NO--AP0124454
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0124454

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FROM STUDIES OF THE ELECTRONIC
ABSORPTION SPECTRA OF THE DIBENZALACETONES, R PRIME1 C SUB6 H SUB4
CH:CHCOCH: CHC SUB6 H SUB4 R (I) (R PRIME1 EQUALS 3, OR 4,0 SUB2 N, R
EQUALS H OR 4,MEO, HO, ACNH, NH SUB2 OR NME SUB2), 2 CHROMOPHORIC
SYSTEMS ARE IDENTIFIED. THE 1ST IS A CONTRAPOLARIZING SYSTEM APPARENT
ONLY IN THE SHORTWAVE REGION, AND THE 2ND A SYN POLARIZING SYSTEM NOTED
SIGNIFICANTLY IN BANDS CORRESPONDING TO TRANSITIONS FOR CHARGE TRANSFER
FROM A HETERO ATOM TO THE CARBONYL O. EXCITATION OF THE 1ST BY THE 2ND
LEADS TO A BATHCHROMIC BAND DISPLACEMENT. FOUR TYPICAL BANDS FOUND ARE
IN THE REGIONS 231-260, 250-330, 321-432, AND 410-550 NM.   PREPD. ARE I
(R PRIME1, R, AND M.P. GIVEN): 4,NO SUB2, OH, 217.5-18.0DEGREES; 4,NO
SUB2, ACNH, 224-5DEGREES; 4,NO SUB2, NH SUB2, 212.5-14.0DEGREES; 3,NO
SUB2, OH, 235.3-6.3DEGREES; 3,NO SUB2, ACNH, 217.5-19.0DEGREES; 3,NO
SUB2, NME SUB2, 171-1.5DEGREES.   FACILITY: MOSK. GOS. PEDAGOG.
INST. IM. LENINA, MOSCOW, USSR.

1/2   015   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--ULTRA SHORT WAVE RADIO COMMUNICATION AS AN AID TO POWER SITUATION
   OPERATION -U-
AUTHOR-(02)-BELOUS, B.P., MAKARENKO, L.A.

COUNTRY OF INFO--USSR

SOURCE--ELEKT. STANTSII (USSR), VOL. 4 L, NO. 3, P. 25-7 (1970)

DATE PUBLISHED-------70

SUBJECT AREAS--NAVIGATION

TOPIC TAGS--RADIO COMMUNICATION SYSTEM, ELECTRIC POWER TRANSMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0492   STEP NO--UR/0104/70/041/003/0025/0027

CIRC ACCESSION NO--AP0135955
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0135955
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE GIVEN OF TESTS CARRIED
OUT WITH ULTRA SHORT WAVE RADIO COMMUNICATION IN THE KONAKOVSK STATE
REGIONAL POWER STATION. THIS TYPE OF COMMUNICATION WAS INTRODUCED AS
PART OF A SCIENTIFIC APPROACH TO THE ORGANIZATION OF OPERATIONS IN THE
POWER STATION, AND IT HAS BOTH IMPROVED AND EXTENDED THE SUPERVISORY
FUNCTION.

UNCLASSIFIED

1/2   027   UNCLASSIFIED   PROCESSING DATE--18SEP70
TITLE--EXPERIENCES IN JEJUNOGASTROPLASTY -U-

AUTHOR-(03)-ZAKHAROV, YE.I., REZNICHENKO, A.I., BELOUS, G.O.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 3, PP 48-52

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--STOMACH, JEJUNUM, DIGESTIVE SYSTEM DISEASE, TUMOR, SURGERY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1174   STEP NO--UR/0531/70/000/003/0048/0052

CIRC ACCESSION NO--AP0054073
                    UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--18SEP70
CIRC ACCESSION NO--AP0054073
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ISSUE SUMMARIZES THE RESULTS
OF 1811 OPERATIONS FOR GASTRODUODENAL ULCERS, TUMORS AND DISEASES OF THE
OPERATED STOMACH, IN 576 CASES WITH JEJUNOGASTROPLASTY. PRIMARY
JEJUNOGASTROPLASTY WAS PERFORMED IN 221 PATIENTS WITH GASTRODUODENAL
ULCERS AND IN 168 PATIENTS WITH BENIGN AND MALIGNANT TUMORS OF THE
STOMACH. RECONSTRUCTIVE JEJUNOGASTROPLASTY WAS PERFORMED IN 125
PATIENTS WITH THE DUMPING SYNDROME AND IN 62 PATIENTS WITH PEPTIC
ULCERS. AN ANALYSIS OF THE IMMEDIATE AND REMOTE RESULTS DEMONSTRATES
THAT JEJUNOGASTROPLASTY DOES NOT INVOLVE AN INCREASED FREQUENCY OF
IMMEDIATE COMPLICATIONS AND LETHALITY IN COMPARISON WITH BILLROTH 2
OPERATION, THUS ENABLING IN THE FUNCTIONAL RESPECT TO ATTAIN MORE
FAVORABLE RESULTS.

UNCLASSIFIED

USSR

UDC 547.26'118

ZEMLYANSKIY, N. I., BELOUS, G. F., MURAV'YEV, I. V., L'vov State University imeni I. Franko

"Concerning the Synthesis and Some Properties of Heterocyclic Totrathio-phosphates"

Abstract: Phosphorus pentasulfide reacted with alkanedithiols in the presence of triethylamino to give triethylammonium salts of alkylenetetra-thiophosphoric acids (I) in which the heteroring consists of methylene groups, sulfur atoms and phosphorus. Reaction of potassium alkoxide with compounds (I) gave the corresponding potassium salts. Alkylation of compounds (I) with alkyl halides or alkyl esters of benzenesulfonic acids produced neutral esters of cyclic tetrathiophosphoric acids.

1/1

USSR   UDC 547.26'118

ZEMLYANSKIY, N. I., BELOUS, G. F., MURAV'YEV, I. V.

"Interaction of Tetrathiophosphates with Alcohols"

Abstract: The dipotassium salts of O-alkyltrithiophosphoric acids easily inter-
act with alcohols in the presence of hydrogen chloride with replacement of one
sulfohydryl radical by an alkoxyl radical and the formation of asymmetric acid
0,0'-dialkyldithiophosphates. In this connection, the capacity of the triethyl-
amine salts of S-alkyl and dialkyltetrathiophosphoric acids to replace sulfalkyl
radicals by alkoxyl radicals on their interaction with alcohols and phenols in
the presence of hydrogen chloride was proved. The physical constant and re-
sults of the analyses are tabulated.
       Mixtures of triethylamine salts of butyl and dibutyltetrathiophosphoric
acid with ethyl alcohol; triethylamine salt of dibutyltetrathiophosphoric
acid with ethyl and allyl alcohols; triethylamine salt of diethyltetrathiophcs-
phoric acid with propyl, propargyl alcohols and phenol were also subjected to
the conversion. The data show that not only one of the two sulfohydryl radicals
of the alkyltetrathiophosphate is easily replaced by an alkoxyl group but also
the sulfoalkyl radicals both in the alkyltetrathiophosphate and in the dialkyl-
tetrathiophosphate.
1/1

USSR

AKSEL'ROD, I. R., BELOUS, L. F.

"Foreign Systems for Analytic Transforms by Digital Computer"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Tech-
nology -- Collection of Works], No 3, Khar'kov, 1972, pp 6-17 (Translated
from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V645, by
the authors).

Translation: This article is a review report on foreign systems for per-
formance of analytic transforms on digital computers and contains descrip-
tions of 16 systems. Brief information is presented on the input language,
internal representations and their realizations. 16 biblio. refs.

USSR

BELOUS, L. F.

"The Degree of Approach to the Language of Mathematics"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Tech-
nology -- Collection of Works], No 3, Khar'kov, 1972, pp 66-67 (Transated
from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V654, by
the author).

Translation: What the author believes to be the most important problems which
could facilitate mutual understanding of man and machine during the performance
of analytic transforms are studied.

1/1

USSR

AKSEL'ROD, I. R., BELOUS, L. F.

"Basic Principles of the SPUTNIK Translator System"

Vychisl. Mat. i Vychisl. Tekhn. [Computer Mathematics and Computer Technology --
Collection of Works], No 3, Khar'kov, 1972, pp 49-51, Discussion 71-77 (Trans-
lated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V651,
by the authors).

Translation: Problems of construction of the SPUTNIK machine-independent
language and system are studied. The main purpose of creation of a
language is to write a translator for CIRIUS. However, it may be useful
for descriptions of other translators as well.

USSR

UDC: 8.74

KALASHNIK, B. A., BELOUS, L. F.

"Dialogue Mode for the M-222 with Batch Jobs in Background"

Teoriya Yazykov i Metody Postroyeniya Sistem Programmir. [Theory of Languages and Methods of Construction of Programming Systems--Collection of Works], Kiev-Alushta, 1972, pp 278-286 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V577, by V. Mikheyev)

Translation: The OSF-1 operational system for the M-222 computer is described, providing for an operational mode (on line) utilizing a remote terminal simultaneously with the running of a batch of jobs. The OSF-1 includes: the supervisor, monitor, general purpose magnetic tape storage, ARAP system storage for programs in ALGOL-60, SIRIUS translator, serial software (TA-1m, autocoder, etc.). Two different programs are distinguished in OSF-1: batch programs and foreground programs (from remote terminal). Each of these can be in either of two states--active or passive. The active state of the program refers to the case when the central processor is running the program and servicing slow peripheral devices upon receipt of passive program requests by interruption. In the passive mode, the program is either waiting for completion of data transfer from terminal devices or waiting its turn. The dialogue mode of the OSF-1

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USSR

Kalashnik, B. A., Belous, L. F., Teoriya Yazykov i Metody Postroyeniya Sistem Programmir., Kiev-Alushta, 1972, pp 278-286

system with the SIRIUS conversational programming system is described.

2/2

USSR   UDC   621.396.6-181.5

BELOUS, M. V., KOSENKOV, A. S., PAVLENKO, G. I., POPOV, V. I.,
CHUGAYEV, V. N., SHCHERBIK, V. K.

"On the Properties of Conductive Elements of Thin-Film Microcircuits
Made by Vaporization of Aluminum, Nickel, Copper and Copper-Based Alloy"

Translation: The authors studied the electrical, structural, adhesion
and other properties of films made by vacuum deposition of aluminum,
nickel, copper and an alloy of 94.5% Cu, 5% Ni and 0.5% Mn. It is
shown that alloying copper with elements having a vapor pressure which
differs markedly from that of the base of the alloy enables an appre-
ciable improvement of the required properties of the films without any
pronounced adverse effect on their conductivity. Resumé.

1/1

USSR   UDC 669.1.017.3:669.784.548.4

BELOUS, M. V.

"Phase Distribution of Carbon On Tempering Hardened Fe - C Alloys"

Kiev, Metallofizika, No 32, 1970, pp 79-82

Translation: A new interpretation of the results of a quantita-
tive magnetic and dilatometric analysis of tempering processes
is given which is based on the assumption that at the early
stages of tempering part of the carbon does not participate in
carbide formation since it is connected with defects in the
crystal structure of alloys.

    A diagram is proposed which makes it possible to describe
the phase distribution of carbon at various stages of tempering
hardened iron-carbide alloys.

1/1

1/2   046   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--MANIFESTATION AND CALCULATION OF THE NONANALYTICAL NATURE OF THE
  CRITICAL FREQUENCIES OF DIPOLE VIBRATIONS -U-
AUTHOR-(03)-BELOUSOV, M.V., POGAREV, D.E., SHULTIN, A.A.

COUNTRY OF INFO--USSR   *B*

SOURCE--FIZ. TVERD. TELA 1970, 12(4), 991-4

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--DIPOLE INTERACTION, ELECTRIC DIPOLE MOMENT, VIBRATION
  ANALYSIS, VIBRATION EFFECT, VIBRATION MEASUREMENT, ANISOTROPIC MEDIUM,
  CRYSTAL ANISOTROPY, RAMAN SPECTRUM, IR SPECTRUM, CALCIUM COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1305   STEP NO--UR/0181/70/012/004/0991/0994

CIRC ACCESSION NO--AP0124956
                          UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0124956

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPRESSIONS WERE OBTAINED FOR THE
FREQUENCY AND INTENSITY OF "ISOLATED" BAND OF DIPOLE VIBRATION IN AN
ANISOTROPIC CRYSTAL AS THE FUNCTION OF DIRECTION OF THE WAVE VECTOR.
QUANT. EXPTL. INVESTIGATION WAS CARRIED OUT OF NONANAL. CHARCTER OF THE
LIMITING FREQUENCIES BY USING IR REFLECTION AND TRANSMISSION SPECTRA OF
CALCITE CRYSTALS. IN THE TRANSMISSION SPECTRUM, A BAND IS OBSD. ON THE
LONGITUDINAL FREQUENCY. A NECESSITY IS NOTED OF THE ACCOUNT OF NONANAL.
CHARACTER IN THE INTERPRETATION OF IR SPECTRA AND THE RAMAN SPECTRA OF
ANISOTROPIC CRYSTALS.   FACILITY: LENINGRAD. GOS. UNIV. IM.
ZHDANOVA, LENINGRAD, USSR.

UNCLASSIFIED

Thin Films

USSR

UDC 539.216.2

BELEVSKIY, V. P., BELOUS, M. V., PERMYAKOV, V. G., YASHNIK, V. M., Kiev Poly-
technic Institute imeni V. I. Lenin

"Electrophysical Properties and Phase Composition of Tantalum Thin Films
Made by Cathode Sputtering"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 33, No 3, Mar 72, pp
564-570

Abstract: It is shown that thin films of tantalum made by cathode sput-
tering in argon may consist of crystals of α-Ta, β-Ta, or a mixture of the
two, depending on the conditions of condensate formation. The electrophysical
properties and structures of tantalum α- and β-phases are investigated. The
resistivity of the β-modification of tantalum was found to be 160-190 $\mu\Omega\cdot$cm,
and the temperature coefficient of resistance -- $200\cdot10^{-6}$ deg^{-1} in 200 nm
and 20 nm films. A $\beta \to \alpha$ phase transformation takes place at 700-750°C in
a vacuum of the order of 10^{-6}-10^{-5} mm Hg, accompanied by an appreciable
change in the electrophysical properties of the films. In the case of very
thin films (20 nm) interaction with residual gases lowers the $\beta \to \alpha$ trans-
formation temperature to 600-650°C.

1/1

USSR   UDC: 621.315.3

BELOUS, M. Ye., BOYARSHINOV, V. K.

"Concerning an Improvement in the Drop Process of Casting Microwires"

Translation: A special shield is developed to protect a melt from air cur-
rents during casting. The mass and temperature of a drop are checked in-
directly by using a photomultiplier. These improvements have made it pos-
sible to develop a method of regulating the running resistance as the drop
is consumed with a resultant improvement in the reproducibility of the rated
resistance in the melting process. Resumé.

1/1

USSR

UDC 539.56

BELOUS, O. A., DANILOVTSEVA, O. G., KUZNETSOVA, V. A., MAL'TSEV, M. V.,
MINAKOV, V. N., TREFILOV, V. I., KHACHATUROV, A. A., SHCHUKIN, A. A.,
Moscow, Kiev. VNIITS (All-Union Scientific Research Institute of Hard
Alloys); Institute of Metallophysics. Academy of Sciences, Ukrainian SSR

''An Investigation of the Influence of Admixtures of Carbon and Zirconium
Carbide on the Cold Brittleness of Cast Molybdenum''

Kiev, Problemy Prochnosti, No. 6, 1971, pp 97-101

Abstract: An investigation is made of the influence of carbon and
zirconium carbide upon the structure of cast molybdenum alloys; and of the
relationship of the structure to the temperature of transition to a brittle
state. It is found that even for alloys which have a complex structural state,
the rules governing the change of the cold-brittleness temperature may be
explained if account is taken of the composition of the solid solution, its
structural state, and the nature of the formation of excess phases on the
grain boundaries. 5 figures, 1 table, 11 references.

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USSR

AKSENOV, I. I., BELOUS, V. A., SMIRNOV, S. A.

"Some Singularities of the Operation of a Pulse Discharge Device With Hollow Starting Electrode"

Abstract: The paper presents the results of an experimental study of a new controllable low-pressure gas-discharge pulse device with pure metal cold cathode for switching high-power current pulses. The starting electrode is located in the cavity of the cathode and takes the shape of a hollow cylinder broken up into "honeycomb" cells by dividers. The data presented show the feasibility of using a discharge with hollow cathode to control a low-pressure cold-cathode gas-discharge device. The use of a "honeycomb" igniting electrode noticeably improves the starting characteristics of the device. The time characteristics of the commutator in the "standby" (preparatory) discharge mode in the trigger chamber approach the corresponding characteristics of hot-cathode devices. The results of the studies can be used in developing commutators for use in high-power pulse installations: both under conditions inherent in pulse thyratrons, and under conditions of switching isolated high-power pulses which are typical of some fields of experimental physics and new areas of industrial technology.

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1/2   009   UNCLASSIFIED   PROCESSING DATE--09OCT70

TITLE--REGENERATION OF MAGNESIUM BASE -U-

AUTHOR-(04)-ONI, L.A., PILYUGIN, V.I., BORISOV, N.L., BELOUS, V.D.

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EXPTS. ON THE RECOVERY OF MG AND
S FROM SPENT LIQUORS OF THE MG BASE SULFITE PROCESS WERE CONDUCTED IN AN
EXPTL. CHAMBER FURNACE WITH AND WITHOUT A CYCLONE PRECOMBUSTION CHAMBER
OF THE TYPE USED IN TYPICAL SODA RECOVERY BOILERS. THE EFFICIENCY OF
THE FURNACE WHEN OPERATED UNDER VARIOUS CONDITIONS WAS EVALUATED BY
DETN. OF THE INDEX OF S RECOVERY (THE RATIO OF S GASIFIED TO THE TOTAL
S INTRODUCED WITH THE SPENT LIQUOR). WITHIN THE NORMAL RANGE OF
VARIATIONS, EXCESS AIR HAD NO EFFECT ON THE COMBUSTION PROCESS. TWO
MAIN FACTORS AFFECTING THE DEGREE OF S RECOVERY WERE THE TEMP. AND THE
PRESENCE OF MINERAL COMPONENTS OTHER THAN MG COMPDS., I.E. MAINLY NA AND
K. AT 1100DEGREES OR ABOVE IN THE COMBUSTION CHAMBER AND 80PERCENT MGO
IN THE ASH, THE DEGREE OF S RECOVERY CAN REACH 97PERCENT AT A NORMAL
EXCESS OF AIR. THUS, THERE IS NO NEED FOR A REDUCING ZONE AND A 2 STAGE
COMBUSTION CHAMBER. UNDER SUITABLE TEMP. CONDITIONS, MG BASE SPENT
SULFITE LIQUORS CAN BE BURNED ON AN INDUSTRIAL SCALE IN FURNACES OF
CONVENTIONAL SODA RECOVERY EQUIPMENT. THE SCREENING TUBES MUST BE
HEATED TO GIVE 950-1000DEGREES AT THE OUTLET OF THE COMBUSTION CHAMBER
AND 1250-1300DEGREES AT THE OUTLET OF THE SUPERHEATED ZONE. A CYCLONE
PRECOMBUSTION CHAMBER IS NEEDED ONLY IF THE REQUIRED TEMP. CANNOT BE
OBTAINED IN THE SUPERHEATED ZONE BECAUSE OF LOW CALORIFIC VALUE OF THE
SPENT LIQUOR OR TOO LOW A TEMP. OF THE AIR FED INTO THE FURNACE.
FACILITY: TSENT. NAUCH. ISSLED. PROEKT. KONSTR. KOTLOTURBIN. INST. IM.
POLZUNOVA, LENINGRAD, USSR.

UNCLASSIFIED

Translation: Measurements of ion electrical conductivity of AgHal crystals made
it possible to determine directly the activation energy for the displacement of
the Ag^+ interstitial ion (ε_1 = 0.11 ev) and the cation vacancy (ε_2 = 0.35 ev)
and to show that ε_1 and ε_2 are considerably less than ε for thermal freeing of
an electron from a deep capture level as is proposed in the Guerny-Mott mechanism.
Irradiation of AgHal single crystals and photographic layers at low temperatures
in an external field produces a photoelectret state in them; a study of thermally

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BELOUS, V. M., et al, Mezhdunar; kongress po fotogr. nauke, Moskva, 1970, Neserebryan materialy i neobychn. fotogr. protsessy, no place of publication given, Vneshtorgizdat, no year given, pp 138-140

induced currents upon heating makes it possible to determine, in view of the condition $\varepsilon_1 < \varepsilon_2 < \varepsilon$, the preexponential factor σ_0 and the activation energy of ion conductivity; the latter, as was expected, was equal to the previously found ε_1. A similar result was obtained in studying thermally induced currents under heating of AgHal-crystals and photographic layers after producing a thermoelectret state in them: the measured values of σ_0, ε_1, and ε_2 coincided with those obtained earlier. Finally, measurements of the dependence of the photoelectret charge on temperature also led to values of ε_1 and ε_2 coinciding with those given above. In addition, σ_0 for crystals and photographic layers differed considerably (σ_0 was much higher for photographic layers) under any method of measurement. A. L. Kartuzhanskiy.

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